

THAT WHICH IS CLAIMED IS:

1. A generator comprising an oscillator producing a clock signal (CKHF) from an N-bit control number (NR), N being an integer greater than 1, wherein the oscillator (40) comprises:

5 - a first group of cells comprising cells (C(1) to C(NH)), each cell having at least one series-connected inverter, and first selection means to select a variable number of cells of the first group of cells as a function of NH0 most significant bits of the
10 control number (NR), and

 - a second group of cells comprising cells (D(1) to D(NL)), each cell comprising at least one series-mounted inverter and second selection means to select one of the cells of the second group of cells as
15 a function of NL0 least significant bits of the control number (NR),

 the cells of the first group and the cell of the second group selected being series-mounted to form a chain of inverters.

2. A generator according to claim 1, wherein each cell (C(1) to C(NL)) of the second group of cells is assigned a place value j ranging from 1 to NL, and wherein the second selection means comprise NL
5 switches (INTD(1) to INTD(NL)) controlled by signals (SDL(1) to SDL(NL)) representing NL0 least significant bits of the control number (NR), each switch (INTD(j)) being series-mounted with a cell having a same place value j between an input point (E) and an output point
10 (S).

3. A generator according to claim 1, wherein two different cells of the second group of cells, having respective place values j , k , $j \neq k$, have different propagation times $(TD0(j)+TD1(j))$,
5 $TD0(k)+TD1(k))$ for a 0 and a 1.

4. A generator according to claim 1, wherein, the difference between the propagation time $(TD0(j)+TD1(j))$ of a 0 and a 1 in a cell with a place value j of the second group of cells and that of a cell
5 $(TD0(j-1)+TD1(j-1))$ with a place value $j-1$ is smaller than the relative uncertainty (ΔP) sought for the period of the clock signal (CKHF) obtained.

5. A generator according to claim 1 wherein, when the control number (NR) increases by 1, a cell $(D(j))$ with a place value j of the second group is selected, this selected cell being:
5 - the cell with the place value immediately higher than that of a previously selected cell $(D(j-1))$, or
- the cell with a lower place value $(D(1))$, an additional cell of the first group of cells $(C(I+1))$
10 being in this case also selected.

6. A generator according to claim 1, also comprising a comparator (32) to compare the period (PHF) of the clock signal with a desired period and give the control number (NR) in the form of N logic
5 signals $(S(1))$, the control number varying as follows:
- the control number (NR) increases if the period (PHF) of the clock signal (CKHF) is smaller than the desired period $(PHF0)$,

- the control number (NR) diminishes if the
10 period (PHF) of the clock signal (CKHF) is greater than
the desired period (PHF0),
- else the control number (NR) is constant.

7. A generator according to claim 1, also
comprising a first decoder (34) to decode the NL0
least significant bits of the control number (NR) and
give a first set of $NL = 2^{NL0}$ control signals (SDL(1)
5 to SDL(NL)) to the second selection means, this first
set of control signals having the following properties:

- $SDL(j) = 1$ if $j = NRL+1$ for any value of j
ranging from 1 to NL, NRL corresponding to the decimal
value of the NL0 least significant bits of the control
10 number (NR).

8. A generator according to claim 1, also
comprising a second decoder (36) to decode the NH0 most
significant bits of the control number (NR) and give
the first selection means a second set of $NH = 2^{NH0}$
5 control signals (SDH(1) to SDH(NH)) having the
following properties:

- $SDH(i) = 1$ if $i = NRH+1$ for any value of i
ranging from 1 to NH, NRH corresponding to the decimal
value of the NH0 most significant bits of the control
10 number (NR).

9. A generator according to claim 1, also
comprising a control circuit (50) to verify the
following inequality:

$$0 \leq (TC0+TC1) + (TD0(1)+TD1(1)) - (TD0(NL)+TD1(NL))$$

5 $TC0+TC1$ being the propagation time of a 0 and
a 1 in a cell of the first group of cells,

TD0(1)+TD1(1) being the propagation time of a 0 and a 1 in the least significant cell (D(1)) of the second group of cells,

10 TD0(NL)+TD1(NL) being the propagation time of a 0 and a 1 in the most significant cell (D(NL)) of the second group of cells,

the control circuit producing a first control signal (Cde(NL)) if the inequality is not verified.

10. A generator according to claim 9, wherein the control circuit (50) comprises:

- a reference oscillator (OSCref), to produce a clock signal with a reference period proportional to
5 (TC0+TC1) + (TD0(1)+TD1(1)),

- a first measurement oscillator (OSC(NL)) to produce a clock signal having a measured period proportional to (TD0(NL)+TD1(NL)), and

- a first comparison circuit (COMP(NL)) to
10 compare the measured period with a reference period and give the first active control signal (Cde(NL)) if the measured period is smaller than the reference period.

11. A generator according to claim 9, wherein the comparator (32) increases the control number (NR) by one unit when it receives the control signal (Cde(NL)).

12. A generator according to claim 10 wherein, to verify the inequality :

$$0 \leq (TC0+TC1)+(TD0(1)+TD1(1))-(TD0(NL-1)+TD1(NL-1)),$$

5 TC0+TC1 being the propagation time of a 0 and of a 1 in a cell of the first group of cells,

the control circuit also comprises:

- a second measurement oscillator (OSC(NL-1)) to produce a clock signal having a second measured period proportional to $(TD0(NL-1)+TD1(NL-1))$, and
- 10 - a second comparison circuit (COMP(NL-1)), to compare the second period with the reference period and give a second active control signal (Cde(NL-1)) if the measured period is smaller than the reference period.

13. A generator according to one of the claims 10 to 12, wherein the control circuit is activated when the oscillator starts, the first control signal (Cde(NL)) and/or the second control signal

5 (Cde(NL-1)) produced by the control circuit being memorized.

14. A generator according to claim 13, wherein the first control signal (Cde(NL)) is taken into account only when the cell (D(NL-1)) with the place value NL-1 of the second group of cells is

5 selected.

15. A generator according to claim 13, wherein the second control signal (Cde(NL-1)) is taken into account only when the cell (D(NL-2)) with the place value NL-2 of the second group of cells is

5 selected.

16. A generator according to one of the claims 10 to 12, wherein the control circuit is activated whenever the cell (D(NL-1)) with the place value NL-1 of the second group of cells is selected.

17. A generator according to one of the claims 10 to 12, wherein the control circuit is activated whenever the cell (D(NL-2)) with the place value NL-2 of the second group of cells is selected.

11. A generator according to one of the claims 10 to 12, wherein the control circuit is activated whenever the cell (D(NL-2)) with the place value NL-2 of the second group of cells is selected.